Randomized Sham-Controlled Trial of Repetitive Transcranial Magnetic Stimulation in Treatment-Resistant Obsessive Compulsive Disorder

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ABSTRACT

In open trials, 1-Hz repetitive Transcranial Magnetic Stimulation (rTMS) to the Supplementary Motor Area (SMA) improved symptoms and normalized cortical hyper-excitability of patients with Obsessive-Compulsive Disorder (OCD). Here we present the results of a randomized sham-controlled double-blind study.

Medication-resistant OCD patients (n=21) were assigned 4 weeks of either active or sham rTMS to the SMA bilaterally. rTMS parameters consisted of 1200 pulses/day, at 1-Hz and 100% of Motor Threshold (MT). Eighteen patients completed the study. Response to treatment was defined as a $\geq$ 25% decrease on the Yale-Brown Obsessive Compulsive Scale (Y-BOCS). Non-responders to sham and responders to active or sham rTMS were offered 4 additional weeks of open active rTMS.

After 4 weeks, the response rate in the completer sample was 67% (6 out of 9) with active and 22% (2 out of 9) with sham rTMS. At 4 weeks, patients receiving active rTMS showed on average a 25% reduction in the Y-BOCS compared to a 12% reduction in those receiving the sham. In those who received 8 weeks of active rTMS, OCD symptoms improved from 28.2±5.8 to 14.5±3.6. In patients randomized to active rTMS, MT measures on the right hemisphere increased significantly over time. At the end of 4 weeks of rTMS the abnormal hemispheric laterality found in the group randomized to active rTMS normalized.

The results of the first randomized sham-controlled trial of SMA stimulation in the treatment of resistant OCD support further investigation into the potential therapeutic applications of rTMS in this disabling condition.

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